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Early in 1915 Dr. J. C. McLennan, head of the department of physics in Ontario University, was requested by the Board of Invention and Research, London, England, to investigate the helium content in various natural gas supplies within the British Empire. As a result of these investigations it has been shown that the largest source of supply of helium at present known within the empire is located in Canada. Commercial methods of separating helium from the other components of natural gas were developed as a result of the preliminary investigations, and considerable progress was made toward the development of methods for the production of helium on a commercial scale, as a result of which it was shown that helium could be produced at a cost of somewhat less than \$0.25 per cubic foot at normal pressures and temperatures.

As a result of a large number of analyses, which are given in this report, it was found that the richest natural gases in Canada contained about 0.33 per cent of helium—a percentage believed to be sufficient for profitable commercial extraction, but considerably lower than the percentages which characterize the gases from a number of wells in Kansas, where the helium content ranges from 1.5 to 2 per cent. Analyses are given of natural gases from Ontario, Alberta, and British Columbia.

As a supplemental investigation, a study was made of the radioactivity of a number of these gases. It was found that when the gases escape from the well they usually contain the emanations of radium and thorium. The thorium emanations are very short-lived, but the decadence in the radium emanations is much slower. Measurements of the radioactivity of a number of gases were made, the method used involving the deduction of the amount of radium emanation from measurements of the increase in electrical conductivity which the presence of radium emanations imparts to the gas.

E. S. B

Potash Recovery at Cement Plants. By ALFRED W. G. WILSON.

Canada Department of Mines, Mines Branch, Bulletin 29, 1909. Pp. 34, pls. 10.

Considerable interest was awakened during the war by the cessation of potash imports from Germany in all possible substitute sources in the United States and Canada. The report under review is the outcome of investigations started then by the Canadian War Trade Board.

The wisdom of peace-time development of our slender resources of potash-bearing brines may be challenged. Much might be said in

favor of allowing such reserves to remain in the ground pending the next national emergency. But the recovery of potash as a by-product of cement manufacture and from iron-blast-furnace dust is utilization of raw material and of heat energy that otherwise would be wasted and should command the support of all conservationists. Such processes have the added advantage of minimizing the dust nuisance around cement plants, which is a danger to the health of employees and is detrimental to crops in agricultural districts. It has been estimated that in the United States, if all cement plants were equipped to recover potash salts, potash equivalent to over one-fourth of our normal imports of German potash salts could be recovered.

The report under review outlines briefly the principles underlying the recovery processes and describes in outline the equipments at all the plants in the United States and Canada where potash recovery has thus far been practiced. At the temperatures of 1,400 to 1,500° C. obtained in cement kilns, the potash-bearing silicates are in part decomposed, potash reuniting usually with the sulphate radical to form potassium sulphate, or to a lesser extent with the chloride radical to form potassium chloride—salts which are soluble and which pass into the stacks with the gases, where they can be recovered by spraying the gases or precipitating the dust by the Cottrell electrical process. The quantity of potash salts produced varies from 2 to 7 pounds per barrel of Portland cement.

Installation of potash-recovery equipment does not involve any changes in the processes of cement manufacture, nor does it affect the grade of the cement produced.

The report closes with a complete bibliography.

E. S. B.

Timiskaming County, Quebec. By M. E. WILSON. Canadian Geological Survey, Memoir 103, Ottawa, 1918. Pp. 197, pls. XVI, figs. 6, map.

This is a concise, detailed report of the results and conclusions of geological field work carried on for a number of years in Timiskaming County, together with a theoretical discussion of some of the more important problems of the area.

Timiskaming County has an area of approximately 20,000 square miles and lies on the east side of the boundary line between Ontario and Quebec and east and northeast of Lake Timiskaming. The National Trans-